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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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KNOBBE MARTENS OLSON & BEAR LLP  
620 NEWPORT CENTER DRIVE  
SIXTEENTH FLOOR  
NEWPORT BEACH CA 92660

EXAMINER

FRONDA, C

ART UNIT

PAPER NUMBER

1652

DATE MAILED:

06/28/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

# Office Action Summary

Application No.  
**09/403,625**

Applicant(s)  
**Debyser et al.**

Examiner  
**Christian L. Fronda**

Art Unit  
**1652**



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claims 1-33 are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some\* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892) 18) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 19) ☐ Notice of Informal Patent Application (PTO-152)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). \_\_\_\_\_ 20) ☐ Other:

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## DETAILED ACTION

### *Election/Restrictions*

1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in response to this action, to elect a single invention to which the claims must be restricted.

Group I, claim 1, drawn to a proteinic or glycoprotein inhibitor of an enzyme selected from the group consisting cellulolytic, xylanolytic, or  $\beta$ -glucanolytic enzymes.

Group II, claim 2, drawn to a proteinic or glycoprotein inhibitor of an enzyme selected from the group consisting of cellulase, endoxylanase,  $\beta$ -glucanase,  $\beta$ -xylosidase, and  $\alpha$ -L-arabinofuranosidase.

Group III, claims 3 and 4, drawn to a proteinic or glycoprotein inhibitor obtainable from plant material.

Group IV, claim 5, drawn to a proteinic or glycoprotein inhibitor obtainable obtainable from micro-organism

Group V, claims 6-13, drawn to a proteinic or glycoprotein inhibitor of xylanase.

Group VI, claim 14, drawn to a xylanase inhbitor selected from the group consisting of proteins or glycoproteins having a molecular weight of between approxiamately 40 kDa and 43 kDa, proteins or glycoproteins having a molecular weight of approxiamately 30 kDa, and proteins or glycoproteins having a molecular weight of approxiamately 10 kDa.

Group VII, claim 15, drawn to a xylanase inhibitor having a molecular weight of between approximately 40 kDa and 43 kDa and a pI of greater than about 7.

Group VIII, claim 16, drawn to a method for obtaining an inhibitor from micro-organisms or plants comprising subjecting said micro-organisms or plants to one or more extraction and/or fractionation step.

Group IX, claim 17, drawn to a method for obtaining an inhibitor comprising introduction

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of a genetic material encoding said inhibitor into a micro-organism or plant.

Group X, claims 19, drawn to a process for transforming a micro-organism or plant comprising reducing the activity of an inhibitor by reduction of expression of the inhibitor.

Group XI, claims 20, drawn to a process for transforming a micro-organism or plant comprising reducing the activity of an inhibitor by blocking the inhibitor function.

Group XII, claim 22, drawn to a process for transforming a micro-organism or plant comprising increasing the activity of the inhibitor by an increase of its expression.

Group XIII, claim 23, drawn to a process for transforming a micro-organism or plant comprising increasing the activity of the inhibitor by activating inhibitor function.

Group XIV, claim 24, a micro-organism or plant obtained by the introduction of a genetic material encoding an inhibitor.

Group XV, claim 25, 37, a method for improving the production of beer of the malting of cereals comprising adding an inhibitor.

Group XVI, claim 26, 39, drawn to a method for improving the production and/or quality of baked or extruded cereal products comprising adding an inhibitor.

Group XVII, claim 27, drawn to a method for improving animal feedstuff efficiency comprising adding an inhibitor.

Group XVIII, claim 28, drawn to a method for improving the production of starch derived products comprising adding an inhibitor.

Group XIX, claim 29, drawn to a method for wheat gluten-starch separation and productin comprising adding an inhibitor.

Group XX, claim 30, drawn to a method for improving maize processing comprising adding an inhibitor.

Group XXI, claim 31, drawn to a method for improving plant disease resistance comprising adding an inhibitor.

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Group XXII, claim 32, drawn to a method for improving nutraceutical and/or pharmaceutical applications comprising adding an inhibitor.

Group XXIII, claim 33, drawn to a method for improving paper and pulp technologies comprising adding an inhibitor.

Group XIV, claim 34, drawn to a method for obtaining an inhibitor from genetically modified micro-organisms or plants.

Group XXV, claims 35, 36, drawn to a method for improving the production of beer or the malting of cereals comprising adding an inhibitor from genetically modified microorganisms or plants.

Group XXVI, claims 38, drawn to a method for improving the production and/or quality of baked or extruded cereal products comprising adding an inhibitor from genetically modified microorganisms or plants.

Group XXVII, claim 40, drawn to a method for improving animal feedstuff efficiency comprising adding an inhibitor obtained from genetically modified microorganisms or plants.

Group XXVIII, claim 41, drawn to a method for improving the production of starch derived products comprising adding an inhibitor obtained from genetically modified microorganisms or plants.

Group XXIX, claim 42, drawn to a method for wheat gluten-starch separation and production comprising adding an inhibitor obtained from genetically modified microorganisms or plants.

Group XXX, claim 43, drawn to a method for improving maize processing comprising adding an inhibitor obtained from genetically modified microorganisms or plants.

Group XXXI, claim 44, drawn to a method for improving plant resistance comprising adding an inhibitor obtained from genetically modified microorganisms or plants.

Group XXXII, claim 45, drawn to a method for improving nutraceutical and/or pharmaceutical applications comprising adding an inhibitor obtained from genetically modified microorganisms or plants.

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Group XXXIII, claim 46, drawn to a method for improving paper and pulp technologies comprising adding an inhibitor obtained from genetically modified microorganisms or plants.

Group XXXIV, claim 47, drawn to a method for improving plant disease resistance by transforming plant cells with a vector expressing an inhibitor.

2. The inventions listed as Groups I-XXXIV do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

The special technical feature of the claimed invention is a proteinic or glycoprotein inhibitor of an enzyme selected from the group consisting of cellulolytic, xylanolytic, or  $\beta$ -glucanolytic enzymes. However, Ham et al. teach a protein inhibitor secreted by *Phytophthora sojae* f.sp. *glycines* which inhibits soybean endo-1,3- $\beta$ -glucanase activity (see entire publication); and Jones et al. teach a protein inhibitor of cellulases in *Dictyostelium discoideum* (see entire publication).

Since Applicants have not contributed a special technical feature over the prior art in view of the teachings of Ham et al. and Jones et al., Groups I-XXXIV do not have a single general inventive concept and therefore lack unity of invention. Accordingly, Groups I-XXXIV are not so linked by the same or a corresponding special technical feature as to form a single general inventive concept.

3. This application contains claims directed to more than one species of the generic invention. These species are deemed to lack unity of invention because they are not so linked as to form a single general inventive concept under PCT Rule 13.1.

For Groups I, III, IV, VIII-XXXII, the species are: cellulolytic enzymes, xylanolytic enzymes, and  $\beta$ -glucanolytic enzymes.

For Group II, the species are: cellulase, endoxylanase,  $\beta$ -glucanase,  $\beta$ -xylosidase, and  $\alpha$ -L-arabinofuranosidase

For Group V, the species are: SEQ ID NO:1 and SEQ ID NO:2

For Group VI, the species are: proteins or glycoproteins having a molecular weight of between approximately 40 kDa and 43 kDa, proteins or glycoproteins having a molecular weight of approximately 30 kDa, and proteins or glycoproteins having a molecular weight of approximately 10 kDa

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For Groups VIII-XVI, XXIV-XXXIII, the enzyme species are cellulolytic enzymes, xylanolytic enzymes, and  $\beta$ -glucanolytic enzymes and the organism species are microorganisms and plants. If any one of these Groups is elected, applicants must elect only one enzyme species and only one organism (either microorganisms or plants).

For Groups XXII and XXXII, the enzyme species are cellulolytic enzymes, xylanolytic enzymes, and  $\beta$ -glucanolytic enzymes and the application species are nutraceutical applications and pharmaceutical applications. If any one of these Groups is elected, applicants must elect only one enzyme species and only one application.

The species listed above do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, the species lack the same or corresponding special technical features because the species for each of the Groups listed above are unrelated and are chemically distinct entities.

Applicant is required, in reply to this action, to elect a single species to which the claims shall be restricted if no generic claim is finally held to be allowable. The reply must also identify the claims readable on the elected species, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered non-responsive unless accompanied by an election.

4. The following claims are generic:

Claim 18 is generic only to Group X and Group XI. If either of the inventions of Groups X or XI is elected, then claim 18 will also be examined but only to the extent of the elected subject matter.

Claim 21 is generic only to Group XII and XII. If either of the inventions of Groups XII or XIII is elected, then claim 21 will also be examined but only to the extent of the elected subject matter.

5. Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

6. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a petition under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

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7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christian L. Fronda whose telephone number is (703)305-1252. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ponnathapura Achutamurthy, can be reached at (703)308-3804. The fax phone number for this Group is (703)308-0294. Any inquiry of a general nature or relating to the status of this application should be directed to the Group 1600 receptionist whose telephone number is (703)308-0196.

CLF



PONNATHAPUACHUTAMURTHY  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1600